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ABSTRACT

Designed to meet the requirements of recent federal legislation, the booklet describes Project DART, which provides services in adapted physical education for handicapped children in Georgia. The first section examines the state of the art in adapted physical education and reviews the mandates of Public Law 94-142 (the Education for All Handicapped Children Act), the writing of the individualized education plan, and the concept of accountability. Sections 2 and 3 provide definitions of handicapping conditions and approaches to program planning (i.e., informal assessment and teaching techniques, with specific suggestions for different handicapping conditions). Section 4 considers formal assessment and evaluation, including a listing of tests and scales used in the areas of physical fitness, motor development and ability, and perceptual motor development. Special needs of the multiply handicapped/orthopedically impaired population are addressed in the fifth section. The final section explores teaching methods and activity modifications. (PHR)

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ADAPTING PHYSICAL EDUCATION ACTIVITIES

This booklet was produced to be used in conjunction with the information presented in Project DART's Phase I Workshop.

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TABLE OF CONTENTS

PROJECT DART 1

RIGHTS AND RESPONSIBILITIES 1

Adaptive Physical Education - The State of the Art 1
Public Law 94-142 2
The Individualized Educational Plan 3
Accountability 4
Putting It All Together 4

DEFINITIONS OF HANDICAPPED POPULATION 5

APPROACHES TO PROGRAM PLANNING 9

Informal Assessment: Where to Start 9
Teaching Techniques 9
Teaching Suggestions for Specific Handicapping Conditions 11
Another Way 17

FORMAL ASSESSMENT AND EVALUATION 18

Assessment 19
Evaluation 20
Other Tests and Scales Available in Physical Education 20
Summary 22

MULTI-HANDICAPPED/ORTHOPEDICALLY IMPAIRED 23

Why Physical Education for the Multi-Handicapped and Orthopedically Impaired? 23
Physical Handicaps/Orthopedic Handicaps - What Can Physical Education Do? 24

TEACHING ADAPTATION AND ACTIVITY MODIFICATION 27

Teaching Techniques 28
Activity Modification 30

Physical Education In Georgia Schools

Physical education is the only curricular area specifically delineated in the Education for All Handicapped Children Act (Public Law 94-142) and Section 504 of the Rehabilitation Act (Public 94-112). This emphasis on physical education in both of these legislative mandates reflects congressional intent: "The committee expects the Commissioner of Education to take whatever action is necessary to assure that physical education services are available to all handicapped children and has specifically included physical education within the definition of special education to make clear that the Committee expects such services, specifically designed where necessary, to be provided as an integral part of the educational program of every handicapped child." (U.S. Congress, House Report No. 94-322)

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PROJECT DART

To enhance the assurance of congressional intent stated in the Education For All Handicapped Children Act (P.L. 94-142) and Section 504 of the Rehabilitation Act (P.L. 94-112), Project DART's major thrust is provision of opportunities for the physical education teacher to increase skills and techniques in working with handicapped students. The opportunities will be provided through in-service education based on the following:

- All students benefit from physical education.
- Some modification of rules and equipment may be necessary, but basically, the physical education curriculum for the handicapped is the same as for non-handicapped, and should emphasize gross motor development, physical fitness, developmental games and activities, and team, individual, and lifetime sports.
- Physical education instruction must approach each student developmentally, rather than in terms of handicapping conditions.
- Physical educators must be aware of problems, needs, and desires of handicapped students relative to physical education.
- The physical educator must be provided the knowledge and skills to develop programs in physical education, recreation, and related activities for handicapped students. This must include practical, functional, how-to-do-it information and materials.

More specifically, the topics of the in-service program will include responsibilities of physical education in relation to P.L. 94-142 requirements; introduction to individualized educational programs; program planning; informal and formal assessment; behavior management; and modified sports and games.

Project DART provides services in Adapted Physical Education, at no cost, to local educational agencies throughout the northeast, middle, and south of Georgia. Regional workshops as well as on-site consultations are cooperatively planned. Further technical assistance and dissemination services can be provided by the Project staff to professional organizations and other agencies that are responsible for the education of children in Georgia.

RIGHTS AND RESPONSIBILITIES

Adaptive Physical Education - The State of the Art

There are over 100,000 school age children identified in special education programs in the state of Georgia. Utilizing a formula involving percentages of children in each handicapping category, a conservative estimate identified over 22,000 students as needing specially designed special physical education services rather than being placed in mainstreamed programs. Based on estimates received from a national survey, a 1 to 80 student-teacher ratio was found to elicit good educational services in physical education. Utilizing this formula, a need was found for approximately 270 adaptive physical education specialists in Georgia. Adaptive physical education has already been identified in the State Special

Education Annual Program Plan as a targeted priority for personnel development.

Under the Adequate Program for Education in Georgia (APEG) no Section XII positions, which include physical education, have been funded to this date. There are, however, approximately fifty physical education teachers and other professionals in Georgia who perform adaptive physical education duties. No Cooperative Educational Service Agency (CESA) has a consultant in the area of adaptive physical education and only one certified physical educator functions as a member of a CESA unit in the state of Georgia.

In addition to presenting the position of need for direct services to handicapped students in terms of specially designed physical education programs, there is also a need to assist regular physical educators charged with teaching the handicapped in mainstream settings. Furthermore, the Annual Program Plan identifies regular physical educators as a targeted population for staff development.

In past years, physical education for handicapped students has been provided in varying degrees throughout Georgia. These programs have ranged from nonexistant to very comprehensive with the discrepancy found from school to school as well as from system to system.

As of September 1980, as stated in Public Law 94-142, regular physical education teachers will be held responsible for providing appropriate physical education services to handicapped students. In order to insure an appropriate program, these teachers must be made aware of their rights and responsibilities.

Public Law 94-142

Definitions

Special Education: free, specially designed instruction to meet a handicapped child's unique needs including instruction in the classroom, physical education, home, hospitals and institutions.

Related Services: transportation and supportive services including speech, audiology, psychological, physical and occupational therapy, recreation and medical and counseling (medical for diagnostic and evaluative purposes only) and can include identification and assessment of handicapping conditions.

Final Regulations

Physical Education is defined as follows: The term means the development of:

1. physical and motor fitness;
2. fundamental motor skills and patterns; and
3. skills in aquatics, dance, individual and group games and sports (including intramural and lifetime sports)

The term Physical Education includes special physical education, adapted physical education, movement education and motor development.

Section 121a.307

General

(a) Physical education services, specially designed if necessary, must be provided to every handicapped child who is receiving a free appropriate public education.

Regular

(b) Each handicapped child must be afforded the opportunity to participate in the regular physical education program available to non-handicapped children unless:

(1) the child is enrolled full time in a separate facility;

(2) the child needs specially designed physical education, as prescribed in the child's IEP.

Comment - Part (b)(3) of Section 121a.203 of the proposed rules and regulations was eliminated because parent and agency agreement is inherent in Part (b)(2). The decision whether the child should be in the regular physical education program, or if specially designed instruction is necessary, is decided in the planning conference in which parent and agency personnel are represented.

Special

(c) If specially designed physical education is prescribed in a child's IEP, the public agency responsible for the education of that child shall provide the services directly, or make arrangements for it to be provided through other public or private programs.

The public agency responsible for the education of a handicapped child who is enrolled full time in a separate facility shall take steps to insure that the child receives appropriate physical education services in compliance with paragraphs (a) and (c) of this section.

The Individualized Educational Plan

The focal point of Public Law 94-142 is the individualized educational plan, written by the child's teachers, parents and local education administrators, which is required for each child in special education. This written plan is a method by which the teacher, administrator, parent and total school system can translate the federal mandate into reality. The IEP then becomes a flexible contract to ascertain whether the child is being provided the most appropriate education in the least restrictive environment. The IEP is not binding in terms of one being held liable if the goals are not achieved. Instead it is a planning process developed to organize the educational program into an individual approach. As physical education is in the definition of special education, physical education must be addressed on each and every IEP. Each child, therefore, must be assessed in terms of whether participation will be in the regular physical education program meeting the same goals as non-handicapped students, in a regular physical education program with modification of goals, or in a specially designed physical education program.

Thus, it becomes imperative that the physical educator become involved in the five major steps in the educational process for handicapped children. The first step involves assessment and diagnostic procedures by which a child's present level of educational performance is identified. From this information a determination can be made as to the child's present level of ability and the child's future needs.

This is accomplished by the establishment of yearly goals and short term objectives for each yearly goal. Determining how to achieve these goals is the next step and involves listing the specific educational and support services needed to meet each objective. Following implementation of the plan, each child's performance concerning the short term objectives is measured on a scheduled basis to determine its effectiveness. Lastly, procedures must be established for reevaluating the IEP on at least an annual basis. This reevaluation includes a formal reassessment at least once every three years.

Motoric assessment, which must include both gross motor and fine motor behaviors, provides the basic data necessary for determining learning priorities. This process will establish as to whether the child can be effectively mainstreamed or whether there needs to be a more restrictive learning setting established. It is not appropriate to systematically place each and every special education child in a mainstream setting for physical education! In addition to identifying the curriculum areas and developing priorities for goals and objectives, it is important to determine the extent of time a child will be in a regular physical education program. For the physical educator, that portion of the curriculum which will require "specially designed instruction" must be identified in order to provide the most appropriate education.

Accountability

Each local education agency must develop a comprehensive plan for educating the special education students in their school district. This plan should be reviewed by each physical educator since a number of the stated responsibilities will apply specifically to them. It is also important that each physical educator read a copy of the State Annual Program Plan in Special Education. The State Plan outlines an additional evaluative procedure that comes within the domain of the physical education teacher. Besides the basic accountability on each and every child's individualized educational plan regarding physical education, the State Department of Special Education has the responsibility for monitoring to assure compliance of appropriate education to the handicapped students of Georgia. A state monitoring team is responsible for evaluating the compliance of each local education agency in the state of Georgia at least once every three years. The monitoring instrument utilized is detailed in the State Program Plan and specifically addresses as one concern the appropriateness of physical education programming.

Putting It All Together

The mandates of Public Law 94-142 are not unique to what is presently accomplished in many school situations. The mandates presented by this law and matched with Section 504 of the Rehabilitation Act can only be interpreted to mean that all handicapped children will participate in some type of physical education program as an integral part of their total education. Secondly, all handicapped children must be afforded the opportunity to participate in educational programs and extracurricular services and activities with their non-handicapped peers as is appropriate (least restrictive environment). It is noted in Section 504 of the Vocational Rehabilitation Act of 1973 that "no otherwise qualified handicapped individual in the United States shall solely by reason of his handicap be excluded from the participation and, be denied the benefits of, or be subjected to discrimination under any program or activity receiving federal financial assistance."

In Section 84.37 of the Federal Register of May 4, 1977 delineating the rules

and regulations governing Section 504 is stated

> (c)(2) A recipient may offer to handicapped students physical education and athletic activities that are separate or different from those offered to non-handicapped students only if separation or differentiation is consistent with their requirements of Section 84.34 and only if no qualified handicapped student is denied the opportunity to compete for teams or to participate in courses that are not separated or different.

Section 84.34 allows for the participation of handicapped students in separate academic, extracurricular, non-academic programs or activities and private or alternate facilities provided that: (1) the education of that child in the regular environment with the use of supplementary aids and services cannot be achieved satisfactorily; (2) the student has the opportunity to participate with non-handicapped peers as much as is appropriate for him/her. This is interpreted to mean that separate educational programs in any curricular or extracurricular area may be provided to handicapped students as long as they are also afforded the opportunity to participate in the regular programs including organized and team sports as appropriate.

From this discussion perhaps a few final highlights can be shared. It should be noted that wheelchair handicapped students (non-ambulatory) are not and should not be considered the total handicapped population in the schools. Secondly, the skill level of a handicapped student must be taken into consideration not only in developing the physical education component of the IEP but also in terms of participation in a sport activity. If the student is not trained in a sport, then certainly he or she would not participate in regional or national competition. The student's ability to compete determines whether participation would be at the intramural, club, national or international level. Providing transportation to a sporting event such as Special Olympics is not providing an athletic program. The value from athletics at any level deals with the developmental value derived from training which then and only then enhances the rewards from participation in the actual competitive event.

A suitable learning environment must be considered in all school programming. The education provided must be safe, stimulating and progressive. What must also be considered is the provision of opportunity for handicapped students to participate in a comprehensive and developmental program of physical education and sport designed to meet their individual needs.

DEFINITIONS OF HANDICAPPED POPULATION

If the aim of adapted physical education is to aid those students with handicapping conditions, it becomes imperative to be able to define the conditions which might classify a student as handicapped. These definitions, as applied in Georgia, appear in the Georgia Department of Special Education's handbook, Rules and Regulations for Special Education Programs, and are as follows:

> Mental Retardation - Mental retardation refers to significantly subaverage general intellectual functioning, existing concurrently with deficits in adaptive behavior and manifested during the developmental period. Significantly subaverage refers to performance which is more

than two standard deviations below the mean of the tests utilized.

Trainable Mentally Retarded - A trainable mentally retarded child will usually have an intellectual ability of approximately one-third to one-half of that of the average child of comparable chronological age. This child may be expected to benefit from a program designed to further socio-economic usefulness in the home or in the sheltered environment or residential setting. The TMR individual has the potential for personal, social and emotional growth leading to productive living under supervision or within a sheltered environment.

For a child to be eligible for placement into a program for the trainable mentally retarded, performance on the individually administered psychological examination shall lie more than three standard deviations below the mean on the tests utilized. Arbitrary restrictive criteria, including incontinence and immobility, shall not be required.

Educable Mentally Retarded - The educable mentally retarded individual has the potential for personal, social and emotional growth leading to independent, productive living.

For a child to be eligible for placement into a program for the educable mentally retarded, his or her performance on the individually administered psychological examination shall range between two and three standard deviations below the mean of the tests utilized. Further, significant deficits in his or her adaptive behavior must be demonstrated.

Severely Mentally Retarded - A severely mentally retarded child will usually have an intellectual ability approximately two-thirds below that of an average child of a comparable chronological age. This child may be expected to benefit from a program designed to further basic skill development in the following areas: self-help, motor, social and communication.

The severely mentally retarded child has the potential for personal, social, and emotional growth leading to maintenance of the above basic skill areas in a supervised environment. Continuous evaluation and monitoring of performance through task analysis and individualized programming will be necessary to verify student progress.

Behavior Disorders - When defined in terms of school functioning, a child would be said to be behavior disordered if his or her behavior is so inappropriate or destructive to himself or herself or others that it interferes with receiving all or part of his or her education in the regular classroom situation. The child's primary difficulty is emotional/behavioral and cannot be explained satisfactorily by any other handicapping condition.

Based upon appropriate (1) screening, (2) diagnostic information which may need to include a psychological evaluation, and (3) staffing, one or more of the following factors exhibited by the student may be regarded as reasons for referral to or placement in a behavior

disorders program.

a. Displayed maladaptive reactions toward peers and authority figures.
b. Temporary or transitory disorders occasioned by crisis situations with the family.
c. Chronic acting out or withdrawal behaviors exhibited in the school setting.
d. History of school suspensions or expulsion.
e. Social maladjustment, as evidenced by adjudication through the courts, or other involvement with correctional agencies.

Specific Learning Disabilities - "Specific Learning Disability" means a disorder in one or more of the basic psychological processes involved in understanding or in using language, spoken or written, which may manifest itself in an imperfect ability to listen, think, speak, read, write, spell, or do mathematical calculations. The term includes such conditions as perceptual handicaps, brain injury, minimal brain dysfunction, dyslexia and developmental aphasia. The term does not include children who have learning problems which are primarily the result of visual, hearing or motor handicaps, of mental retardation, of emotional disturbance or of environment, cultural or economic disadvantage.

Visually Impaired - Children to be served include those whose visual handicaps prevent successful functioning in a regular school program; children whose visual handicaps may result from congenital defects, eye diseases, severe refractive errors, injuries to the eye or poor coordination. They fall into the following basic categories.

a. Functionally Blind - A child who will be unable to use print as his or her reading medium is considered to be functionally blind. Instruction in braille and in use of recorded materials will be essential to this child's education.

b. Legally Blind - A legally blind child is one whose visual acuity is 20/200 or less in the better eye after correction, or who has a limitation in the field of vision that subtends an angle of 20 degrees. He or she falls within the definition of blindness, although he or she may have some useful vision and may even read print.

c. Partially Sighted - A partially sighted child is one whose visual acuity falls within the range of 20/70 to 20/200 in the better eye after correction, or when the child cannot read 18 point print at any distance, on the basis of a current examination by an eye specialist.

Speech Impaired - Speech and language services provide diagnostic (evaluative), therapeutic (habilitative) and consultative services for students handicapped by communication disorders. Communication disorders may be exhibited by one or more of the following: (1) a language disorder characterized in terms of comprehension and/or use of words and their meanings (semantics), grammatical patterns (syntax and morphology) and speech sounds (phonology); (2) a speech disorder characterized by difficulty in producing speech sounds (articulation), maintaining speech rhythm (stuttering) and

controlling vocal production (voice) and (3) a speech or language disorder characterized by difficulty in receiving and understanding speech without auditory training, speechreading, speech and language remediation and/or a hearing aid.

Hearing Impaired - A hearing impaired child is one who exhibits a hearing loss which interferes with his or her acquisition or maintenance of auditory skills necessary for the development of speech and language.

This may include children who are hearing impaired due to congenital or acquired factors. The educational classification and class placement of hearing impaired children shall depend primarily on the child's communication ability which is determined in part by age of onset, severity of loss, type of loss, educational abilities and presence of other handicaps.

Deaf-Blind - "Deaf-Blind" means concomitant hearing and visual impairments, the combination of which causes such severe communication and other developmental and educational problems that they cannot be accommodated in special education programs solely for deaf or blind children.

Physically, Multi-Handicapped and Other Health Impaired -

a. Physically Handicapped - These are children whose body functions or members are so impaired, from any cause, that they cannot be adequately or safely educated in regular classes of the public schools on a full-time basis without the provision of special education services.

   Physically handicapped may refer to conditions such as:

   (1) Muscular or neuromuscular handicaps which significantly limit the ability to move about, sit or manipulate the materials required for learning;
   (2) Skeletal deformities or abnormalities which affect ambulation, posture and body use necessary in school work.

b. Multi-Handicapped - Multi-handicapped may refer to children who have some physical or sensory handicap and one or more additional handicapping condition(s) which are educationally significant to the extent that they cannot respond to regular instructional techniques provided for students in other education programs for the physically handicapped or mentally handicapped.

c. Other Health Impaired - These are disabilities which result in reduced efficiency in school work because of temporary or chronic lack of strength, vitality or alertness due to acute health problems. Examples would include heart conditions, tuberculosis, rheumatic fever, nephritis, asthma, sickle cell anemia, hemophilia, epilepsy, leukemia or diabetes.

Those determined as handicapped may be eligible for adapted physical education programs as part of their "special education." The rules and regulations

which guide such programs stem from Public Law 94-142, the Education for All Handicapped Children's Act of 1975, and need to be understood by all physical educators and special educators who will be implementing and/or supervising programs of physical education for those with handicapping conditions.

APPROACHES TO PROGRAM PLANNING

Informal Assessment: Where to Start

As a physical education teacher it is easy to already expect students to be able to perform the basic skills (catching, throwing); however, do not take this for granted when dealing with handicapped students. And for some of the more severe handicapped students a number of the basic skills are inappropriate, making it necessary to teach fundamental skills (locomotor, perceptual).

In order to plan the most appropriate physical education program, it is recommended to first informally assess the motor development of each student. This can be achieved by making a check-off list of skills necessary for successful participation in class. The first week of school can be spent observing each student while participating in activities using the listed motor skills.

The results of this informal assessment could be used in a number of ways. First, by knowing the entry level of each student a program can be planned from that point and needless repetition or frustration will be avoided. Second, the short term objectives and long term goals for the IEP will be based upon the motor ability of the handicapped student. And third, if the informal assessment shows a significant lag in motor development, a formal assessment tool can be utilized for more detailed analysis. Through formal assessment, other considerations may be revealed, such as: special equipment; assistance of an aide; and/or programming a student seven rather than five times a week.

The success of a program may rely on the students' social performance. It may well be advisable to also evaluate their social behaviors. There might be a few students that work much better by themselves or with a partner rather than on a team or with a group. Just identifying levels of social performance for each student, whether individual, parallel, partner or group, may assist greatly in planning and cut off disruptive behavior rather than creating an environment conducive to its development.

Teaching Techniques

It is easy to become confused when trying to change rules of sports and games and to decide what else needs to be done to include handicapped students in the program. The key to this problem is, don't change your program as much as you might change your teaching methods.

The following teaching techniques have been adapted from a suggested list developed by AAHPER. These techniques might prove to be helpful in integrating the handicapped students in the regular physical education program.

- Progress slowly, offering familiar activities first. Use repetition because these students need reinforcement of learning.

- Introduce new activities during the early part of period before the group gets tired.

- Be clear in directions without talking down to the group.

- Use concrete examples.

- You must be the enthusiasm for the handicapped child.

- Be kind, firm, using a positive approach.

- Do not touch the student unless you have told him what you plan to do.

- Educational principles of effective teaching and learning are applicable to the retarded and should be utilized, for instance, from the known to the unknown and from the simple to the complex. Both conceptual understandings and skills should be considered. Motor development should proceed from gross to fine movement and from trunk movement to movement of the extremities.

- Coaction - feel general or specific movement patterns by placing hands on parts of the body of an individual going thorough desired movement patterns.

- Tactile - use touch to relate more effectively to the child what part of the body is to be used. This is an effective means of reinforcing other stimuli.

- Visual - use of visual aids in combination with other stimuli. Caution should be exercised in the use of mirrors involving left and right concepts because of the reversed reflection.

- Abstract - use of signals, signs, and words which must be received and interpreted prior to reaction by the student.

- Games and activities should be selected for their recreative value as well as their physical, social or mental value.

- If discipline is a problem, it is probably that the game is too difficult to understand, requires too much skill, has too many rules, or has too many verbal instructions.

- If children lack interest in an activity, do not insist they play it.

- Give the children goals in which they can have some measure of success, and use praise often.

- Select games which are within the skill range of the students. Take nothing for granted where movement is concerned.

- Give as few rules as necessary to begin the game . . . introduce other rules as skill level progresses.

- Let children compete with themselves.

- Modification of rules may be necessary for the inclusion of all children.

- Demonstration coupled with verbal explanation is effective when working with handicapped students.

- Children are usually great imitators. Teach by indirection as well as by direction.

- The chronological age of a child should be considered when selecting activities.

- A few common positive signals or commands should be understood by all children (clapping hands, whistle, etc.).

- Realize that problems are not always what they most obviously seem. A child's inability to catch a ball may be due to visual problems rather than lack of coordination or fear of being hit.

- Maintain a balance between vigorous activities and less demanding activities especially for those with serious physical or mental defects.

- Be attuned to laughter and excitement. These are good measures of enjoyment.

- The instructor must guard against working on more than one aspect of a skill at a time. By concentrating on a single phase of the skill, the participant can place all of his mental efforts into performing this act; he is more apt to experience success and is less likely to become confused and fail.

- Base new activities on previously learned experiences whenever possible; avoid presenting too many ideas too quickly.

- Think in terms of experience and participation for each indivual. Consider the individual handicap in terms of how it affects teaching methods and approaches.

Teaching Suggestions for Specific Handicapping Conditions

There will be differences between the various handicapping conditions which will affect how an activity may be taught. It is the purpose of the following section to provide specific teaching suggestions for the various handicapping conditions. Some specific teaching hints in relation to the type of handicap include the following:

Physically Handicapped

Physically impaired students can participate in most physical education activities with appropriate modification.

A. Suggestions for Teachers:

1. Obtain periodic medical approval of the student's program and plan accordingly;
2. Obtain new medical recommendations after a student is absent because of illness or surgery;
3. Plan so that every student has an opportunity to participate as much as possible;
4. Be aware that the handicapped student requires more individual and hazard-free space for activity than the non-handicapped student;
5. Provide frequent periods of rest for those with limited endurance;
6. Be aware of the dangers of twisting, bending, falling, and lifting;
7. Teach the orthopedically handicapped to fall correctly from crutches, wheelchairs, or unsupported positions;
8. Substitute sitting or lying positions for standing positions when necessary;
9. Use lighter-weight equipment when necessary;
10. When necessary, have students on crutches throw underhand instead of overhand;
11. Allow additional stops in games requiring running or movement;
12. Attach the upper edge of a sheet or net to wall or backboard and lower edge to student's location for retrieval of ball when working with target or basket activities.

B. Example

1. General Objective: to play volleyball independently according to the student's abilities.
2. Specific Objective: to serve the volleyball over the net and into the opposite court three out of five times (use of any modification of the serve is acceptable).
3. Activity: use a volleyball, a net, and a hazard-free flat surface. Lower the net or shorten the distance to the net only when necessary. Practice serving, using any mobile part of the body or prosthesis (i.e., knee, shoulder, crutch, etc.).
4. Assessment: serves the ball over the net and into the opposite court three out of five times.

Learning Disabled

The learning disabled student may have difficulties processing verbal instructions, remembering the sequence of instructions, interpreting visual signs and markings, and relating to the activity space. Short attention span, tension, and sometimes inappropriate social behavior result in a need for a structured environment.

A. Suggestions for Teachers:

1. Give instructions one at a time, speaking slowly and distinctly;
2. Use short, simple sentences and face the student when giving instructions;
3. Eliminate as much extraneous auditory and visual stimuli as possible:

4. Plan with the student to use a manual signal (e.g., finger on ear or nose) to gain attention;
5. Use imagery appropriate for age and activity;
6. Use multisensory cues, such as pointing in the direction you are discussing and having the student do the same;
7. Set limits of acceptable behavior individually with the hyperactive or impulsive student so that the student knows the teacher understands his or her problem but expects compliance with the rules;
8. Provide the time before class to review with the student written materials that are to be used;
9. Use a student's ambidextrous agility as an opportunity to enhance self-esteem;
10. Plan so that the student has many successful experiences, especially at the beginning of the school year.

B. Example:

1. General Objective: to identify different types of space in a structured environment.
2. Specific Objective: to move within the individual space.
3. Activity: students are assigned color spaces to occupy and asked to sit inside the space. The teacher should use the suggestions previously given to assist learning disabled students. To help each student gain experience about the shape of the assigned space, the teacher may request that he or she:

    a. Walk around the inside of the color space;
    b. Put the body inside and the hands and feet outside the color space;
    c. Curl up and make yourself very small inside the color space;
    d. Stretch yourself so that you are bigger than your space.

4. Assessment: the student identifies space, follows movement commands, and makes appropriate responses within assigned space.

Speech Impaired

Students with speech impairments should be able to participate in regular physical education activities.

A. Suggestions for Teachers:

1. Use familiar words when giving instructions;
2. Individuals who cannot solve language problems may be unable to follow instructions even if they have a good vocabulary. They may need a breakdown of the instructions into smaller steps.
3. As speech improves, encourage students to use newly acquired skills.

B. Example: No example is given because students with speech impairments usually participate in regular physical education programs. The physical education teacher should be sensitive to student needs and consult with the speech pathologist if reinforcement is necessary in the classroom.

Deaf and Hearing Impaired

Communication and balance are some areas of concern for the deaf and hearing impaired. Very few modifications of activities or equipment will be necessary for this group.

A. Suggestions for Teachers:

1. Place the student where the teacher's face is visible;
2. Establish eye contact when initiating an activity;
3. Use hand signals along with verbal commands;
4. Use many visual aids and demonstrations;
5. Encourage the student to follow the example of classmates;
6. Supplement calling the name of the deaf student with a tap or hand indication;
7. Be aware that deaf and hard-of-hearing students may have balancing difficulties;
8. If balance is a problem, help the student select game positions that have a minimum of spinning movement or sudden direction changes;
9. Post safety rules for use of facilities and equipment at eye-level and in appropriate locations.

B. Example:

1. General Objective: to participate effectively and independently in rhythmic group activity.
2. Specific Objective: to keep rhythmic time by moving any part of the body to two-four time.
3. Activity: to sit in a circle facing inward. Using various parts of the body, play rhythmic follow-the-leader. Rotate leaders. Provide vibratory rhythm with a percussion instrument or record. A strong bass provides maximum vibration.
4. Assessment: performs successfully as the leader in rhythmic "follow-the-leader" by leading the group to two-four time for ten seconds.

Mental Retardation

Mental retardation refers to a condition in which the student functions significantly below average in intelligence and adaptive behavior. Because of their lower level of intellectual functioning mentally retarded students are not able to assimilate information at the same rate as average students. Therefore, adaptations in instruction are needed for such students.

I. Educable Mentally Retarded

A. Suggestions for Teachers:

1. Extend learning time periods;
2. Use simplified and sequential instructions;
3. Reinforce terminology of the activities;
4. Praise abilities;
5. Use structured routines;
6. Find ways to provide opportunities for decision

making and independent action;
7. Provide opportunities for increasing emotional adaptability;
8. Provide opportunities for the student to feel a part of the group;
9. Continue to emphasize safety rules;
10. Use demonstrations by teachers or other students.

B. Example:

1. General Objective: to successfully play flag football as a team member.
2. Specific Objective: to demonstrate knowledge of team member rules by playing a designated position properly for ten minutes without a violation.
3. Activity: List equipment. Play a game of flag football. Use teaching suggestions given above.
4. Assessment: group participation and team play. To follow the rules while playing a designated position for ten minutes without a violation.

II. Trainable Mentally Retarded

A. Suggestions for Teachers:

1. Extend learning time periods;
2. Use fewer game terms and frequently reinforce terms used;
3. Simplify sequence and repeat instructions;
4. Shorten sentences;
5. Teach one skill at a time;
6. Praise abilities;
7. Use color coding when necessary;
8. Decrease actual game time until endurance has developed;
9. Teach and stress safety rules;
10. Use demonstrations by teacher or other students;
11. Modify rules if necessary.

B. Example:

1. General Objective: to successfully play flag football as a functional team member.
2. Specific Objective: to participate independently as a member of a team.
3. Activity: using two sets of colored flags, a football and goal markers, play a game of flag football. Use teaching suggestions for teachers given above.
4. Assessment: follow rules while playing a designated position for ten minutes.

Behavioral Disorders

While the behavioral disordered student can participate in most physical education activities, the teacher should be aware of and plan for rapid changes of mood and attitude that these students may exhibit. Since surprises may upset the student, the teacher should plan the procedures to be followed before he or she comes to the physical education class. The procedures, which should

be in writing and agreed to by all concerned, including the student, should be followed carefully on all occasions. There will be little need for adaptation for most behavioral disordered children.

A. Suggestions for Teachers:

1. Plan arrival and departure procedures and follow them carefully;
2. Minimize the waiting time for activity to begin;
3. Avoid unsupervised periods of time;
4. Minimize "lining up" and "staying in line";
5. Give ample warning before making changes in routine, scheduling classes, etc. Avoid sudden changes of program and ask the special education teacher to help explain changes ahead of time;
6. Offer choice of activities on occasions;
7. Include many non-competitive games and activities. Minimize competition. Foster the idea of participation for fun and enjoyment;
8. Praise abilities;
9. Use activities that teach the student to understand the parts of the body and their relationship to space and how to move in space;
10. Arrange for careful supervision of locker and shower rooms (Many emotionally disturbed students will refuse to remove their clothes and dress for physical education class in what they feel is a public situation. These inhibitions should not be dealt with in the locker room. Alternative arrangements should be made until the situation improves).

B. Example:

1. General Objective: to play a regular or modified game of badminton.
2. Specific Objective: to develop enough skill to return two or more continuous volleys of the shuttlecock (birdie).
3. Activity: using a net, rackets, and shuttlecock, practice volleying shuttlecock to another player.
4. Assessment: to volley the shuttlecock two or more times in succession with a skilled opponent.

Visually Impaired

A physical education program for visually impaired students often needs little modification. Some changes may be necessary, however, to accommodate students with eye conditions that will not permit them to participate in the regular program.

I. Partially Sighted

A. Suggestions for Teachers:

1. Be aware of potentially dangerous situations that might cause additional eye damage;
2. Modify the distance required for recognition of objects;
3. Enlarge target object;
4. Use brightly colored objects;
5. Provide maximum lighting;
6. Be aware of possible need to modify activities that require sudden change of direction.

B. Example:

1. General Objective: to develop independent full-time class participation in track and field activities.
2. Specific Objective: to clear the high jump bar set at a challenging height.
3. Activity: allow the totally blind student to place one hand on the bar to locate it and perform a one-step high jump.
4. Assessment: the student can clear the bar once in three tries.

Another Way

When teaching a specific skill or an activity, experience has shown more success has been achieved when it was broken down into progressive steps. By having the activity systematically divided into steps, the entry level of each student can be ascertained. An example of this is the I CAN, a commercially published physical education instructional system which works on this basis of task analysis. The program is divided into four modules: Fundamental Skills; Aquatics; Body Management; and Health/Fitness.

Each module is separated into two performance areas. For example, the module of Fundamental Skills is divided into object control and locomotor and rhythm skills. Object control is then broken down into skills: overhand throw; underhand throw; roll a ball; kick; bounce; catch; and strike. Each skill is progressively taught by increasing performance levels of: with assistance; without assistance; and a mature pattern or a skill that is developed to the point of being functional for that child.

The program includes teaching directions, organization, materials needed, games using the desired skill to be learned and progress records to help monitor each student. This curriculum can be adapted to teach all levels of students. Recently work was completed on adapting this program for the SMR and PMR populations.

A new teaching approach in physical education for SMR students is the Data Based Gymnasium. The major goal of this program is to incorporate therapeutically oriented motor programs and physical education programs dealing with organized game, sport and physical fitness skills. The curriculum is divided into four sections: movement concepts which covers the movement through space and the individual's environment; movement skills necessary for participation in elementary games; physical fitness skills necessary for survival in modern life; and lifetime leisure skills.

The attainment of appropriate behaviors is necessary so that any program can reach its goals. Therefore, in the Data Based Gymnasium the emphasis is placed on cueing, reinforcers, consequences and shaping (task analysis).

A clipboard is kept on each student containing all the necessary information concerning the skills to be taught and how they are to be taught using the correct reinforcers and task analysis. The weekly cover sheet is the first sheet listing the activities to be covered. The second page explains the primary/tangible and social reinforcements used with the student decided upon by all of his teachers. Receptive and expressive language are also evaluated on the second

page. The lesson for the day, written in a task analysis form, comprises the third page with the final page used as the data sheet where the teacher records the number of trials and reinforcers necessary for the student to achieve the skill.

The author, John Dunn, stresses that the Data Based Gymnasium was designed as a program to be modified by teachers to conform to their specific situations and to meet their student's specific needs. He explains that the philosophy, "every child can learn," is the key factor to remember in adapting the physical education program.

Another excellent program which was developed by people in special education is the Minimum Objective System or MOS. This program is designed for use with the more severely handicapped students. The primary focus is on minimum skills which are normally acquired between birth and two years of age. For example, the objective of standing on one foot is considered a minimum motor objective, since one-foot standing is a necessary behavior for going up and down stairs or curbs. Other objectives such as jumping, although not a necessary skill for independent living, are refinements of coordinated motor skills making students more adaptable to situations that may arise in their environment.

There is a great similarity between the I CAN and MOS. Both systems have carefully chosen functional motor skills and are presented to insure success.

A manual that lists basic physical education goals according to the handicapping condition is Physical Education Inservice Resource Manual for the Implementation of the Education For All Handicapped Children Act (PL 94-142) by Joseph Winnick. The information obtained from this book can be used as a support to design programs.

FORMAL ASSESSMENT AND EVALUATION

Today, when Public Law 94-142 is one of the physical educator's major concerns, reliable instruments are needed to assist educators in implementing the mandates of this law. These requirements can be met through a three-step process: (1) identification, (2) evaluation, and (3) an individualized education program (IEP).

Reasons for testing have been related earlier; therefore, the purpose will be to present some of the formal types of assessment instruments available that could be appropriate for planning a physical education program. There are three types of assessment instruments which will assist in formulating a child's IEP. They are: (1) screening tests; (2) check-off lists, which are used for identification purposes; and (3) evaluation instruments, which assess the child's motor abilities.

With the first step in meeting the requirements of P.L. 94-142 being identifying deficiencies as early as possible, the use of initial screening tests will assist in targeting those children who need further evaluation. This, then, is the purpose of the screening test: to determine whether special assistance is needed, not the kind of assistance that may be needed.

The following describe some of the screening tests, check-off lists, and

tests of motor proficiency that are available.

Assessment

The Denver Developmental Screening Test (DDST) consists of a kit of inexpensive materials, a reference manual, and a score sheet. It is designed to be used with children from two weeks to six years of age and is administered by asking a child to perform various tasks appropriate to his or her age. The time required to administer the four areas covered by the test, personal-social, fine motor, gross motor, and language, is approximately 30 minutes. By comparing the child's achievement level with chronological age, the admininstrator of the test can determine if the child is developing in a satisfactory manner or developing at a slower rate than his or her peers and is in need of further evaluation.

The McCarthy Screening Test (MST) is designed to identify children between four (4) and six and one-half (6 1/2) years of age who are likely to experience difficulty in performing school tasks and, therefore, are in need of special educational assistance. The MST takes approximately 20 minutes to administer and consists of six separate tests: Right-Left Orientation; Verbal Memory; Draw-A-Design; Numerical Memory; Conceptual Grouping; and Leg Coordination. The method for scoring is listed after each item so that comparisons to norms can be made and a child's level of performance determined. The indication is that a child who is between 4 and 6 1/2 years of age and cannot perform the baseline skills in the areas tested should be referred for further evaluation.

Another approach to determining a child's level of developmental abilities is the use of a check-off list. This list can be from a published source or one that is compiled by the teacher and contains the skills necessary to perform in class. When the student is observed in an activity, the teacher merely "checks-off" whether he or she has a mature movement pattern for that skill or parts of that skill. At the pre-school, kindergarten, and elementary school levels, the Portage Guide to Early Education (revised) can be used for this purpose. The Guide was originally designed to be used in the home with the parent as the prime teacher. However, when it was discovered that over 60% of the purchasers were using the Guide for curriculum planning in the classrooms with children with varying handicapping conditions, a revision of the Guide was determined as being necessary. The Guide comes in three parts: (1) a checklist of behaviors on which to record an individual child's developmental progress; (2) a card file listing possible methods of teaching these behaviors; and (3) a manual of directions for use of the checklist and card file as well as methods for implementing activities. The Guide presents assessments in the areas of infant stimulation, socialization, language, self-help, cognitive, and motor skills. By referring to the standardized checklists in these areas, the child's developmental stages can be compared and decisions made as to whether further evaluation is necessary.

The Purdue Perceptual Motor Survey is an assessment tool which is used to identify children who may be deficient in the perceptual motor abilities necessary for acquiring academic skills by the usual instructional methods. The Survey subtests can be divided into three major sections: those dealing with aspects of laterality; directionality; and skills of perceptual-motor matching. The Survey is administered by having a child perform tasks in the areas of (1) Balance and Postural Flexibility, (2) Body Image and Differentiation, (3) Perceptual-Motor Match, and (4) Ocular Control and Form Perception. Instructions for administering and scoring the Survey are detailed in the manual and

will give the teacher an overview of the child's perceptual-motor behaviors as well as an indication of areas which may need further study.

At the upper elementary, middle and high school levels, the skill (performance) profiles of the I CAN CURRICULUM are appropriate as a check-off list. These skills cover a range of abilities that could be found in a physical education program.

There may be other types of assessment instruments that are being used by your schools system. The school psychometrist could provide you with information from these tests which could be helpful in determining a child who is in need of further evaluation.

Evaluation

The second step, that of evaluation, is applicable to those children identified by screening. These children must be evaluated by a team of specialists in order to determine the nature and extent of the special education services that each child needs. A formal instrument which is appropriate for testing in the area of physical education at the elementary, middle, and high school levels is the Bruininks-Oseretsky Test of Motor Proficiency. The Oseretsky Test is individually administered and assesses the motor functioning of children between the ages of four and one-half (4 1/2) years to fourteen and one-half (14 1/2) years.

The complete battery consists of eight (8) subtests comprising 46 separate items providing a comprehensive index of motor proficiency as well as a separate measure of gross and fine motor skills. Approximately one hour is required to administer the complete battery.

The short form of the Oseretsky Test consists of 14 items from the complete battery and thus gives a brief survey of general motor proficiency. The short form takes approximately 30 minutes to administer. The eight subtests are: (1) Running Speed and Agility; (2) Balance; (3) Bilateral Coordination; (4) Strength; (5) Upper Limb; (6) Response Speed; (7) Visual Motor Control; and (8) Upper Limb Speed and Dexterity.

The test kit contains the items required to administer the test. The manual contains normative data including standard scores for each age group, percentile ranks and stanines. Age equivalents are also provided for each of the eight (8) subtests.

Another evaluation instrument is the Stott-Moyes-Henderson Test of Motor Impairment. This test is designed to assess motor impairment of functional or presumed neurological orgin in children between the ages of five to sixteen years. The five skill categories tested are as follows: (1) control and balance of the body; (2) control and coordination of the upper limbs; (3) control and coordination of the body while in motion; (4) manual dexterity with the emphasis on speed; and (5) tasks which emphasize simultaneous movement and precision.

Other Tests and Scales Available in Physical Education

To decide which test(s) are best for a particular situation, many factors should be taken into consideration. These include validity, reliability, economy of time and money, age group involved, equipment needed, size of the group, and

type of handicapping condition. Listed below are some tests and scales in the areas of Physical Fitness, Motor Development and Ability, and Perceptual Motor Development which are recommended by Dr. Joseph P. Winnick (1978) on the basis of these factors.

Test	Components	Age and Population	General Area
AAHPER Special Fitness Test	Arm and Shoulder Girdle Strength Efficiency of Abdominal and Hip Flexor Muscles Speed and Agility Explosive Muscle Power Skill and Coordination Cardiovascular Efficiency	Mildly Retarded 8-18 yrs.	Physical Fitness
	Same elements as above plus: Height, Weight, Sitting Bob and Reach, Hopping, Skipping, Target Throw and Tumbling Progression	Moderately Retarded 6-21 yrs.	Physical Fitness
AMP Index	Level of Awareness, Manipulation of Environment, Movement, Posture and Locomotion.	Profoundly Retarded 2½-17½ yrs.	Perceptual Motor Ability
Buell's Adaption of AAHPER Test for Blind	Same as AAHPER Special Fitness plus: strength, power and coordination.	Blind: 8-18 yrs.	Physical Fitness
Cratty Six Category Gross Motor Test	Body Perception, Gross Agility, Balance, Locomotor Agility, Ball throwing and tracking	EMR (educable mentally retarded) 5-20 yrs. TMR (trainable mentally retarded) 5-24 yrs. Down's Syndrome 5-22 yrs.	Motor Development and Ability
Cratty Body Image Test for Blind	Body Planes Body Parts Body Movements Laterality Directionality	Blind: 8-19 yrs.	Perceptual Motor Ability

Test	Components	Age and Population	General Area
Denver Developmental Screening Test	Gross Motor Function Language Fine Motor-Adaptive Personal-Social	General Population 2 weeks-6 yrs.	Perceptual Motor Ability
Frostig Developmental Test	Eye-Motor Coordination Figure-Ground Constancy of Shape Position in Space Spatial Relationships	General Population 4-8 yrs.	Perceptual Motor Ability
Godfrey-Kephart Checklist	Movement Patterns		Motor Development and Ability
Hayden Fitness Test	Strength & Endurance Power, Strength and Coordination Flexibility and Strength Flexibility, Strength, and Endurance Power Flexibility Organic Fitness	EMR: 8-17 yrs. TMR: 8-17 yrs.	Physical Fitness
Move, Grow, Learn Survey (Not standardized. Based on observation.)	Balance Coordination Strength Body Awareness Creative Movement Flexibility	General Population 6 yrs. old and up	Physical Fitness, Motor Development, Perceptual Motor Development

The American Alliance of Health, Physical Education and Recreation has published a book entitled, Testing for Impaired, Disabled, and Handicapped Individuals. This book gives a brief introduction to the values and uses of testing. It lists and provides detailed information related to 45 different tests in the areas of Physical Fitness, Motor Ability, and Perceptual-Motor Development and Ability. This book enables instructors to review basic components of various tests before selection is made for a particular situation.

Summary

Testing is an important factor for assessing needs, diagnosing weaknesses, and prescribing activities for each handicapped child. Test results seldom, however, provide all the answers or understandings of a handicapped student's developmental abilities and disabilities. Through teacher observation, understanding of normal child growth and development, coupled with results from a variety of informal and formal screening tests, the necessary ingredients are available to make valid judgements about each child's needs. Through testing, a child's strengths and weaknesses can be determined and results used to develop a program with specific approaches and techniques thus providing the most appropriate educational setting for each child.

MULTI-HANDICAPPED/ORTHOPEDICALLY IMPAIRED

This section deals with physical education programming for the multi-handicapped and orthopedically impaired and the considerations to examine before beginning programming. This section is directed for the most part at teachers of physically handicapped and orthopedically impaired hoping the other workshop teachers pick up the mental retardation aspect of the multi-handicapped person.

A physical handicap could be defined as the decrease in the efficiency of movement, ranging from the mechanical inefficiency of a simple movement to the inefficiency of repetitive movement. An example is limping while you're jogging. The movements are very inefficient, and you're not going to be able to continue very long. Therefore, endurance is affected because you can't continue the movement aerobically for a great length of time. The orthopedic handicap deals directly with a muscle or a bone problem, whereas a physical handicap is an all-encompassing term. Examples are that blindness is a physical handicap and diabetes is a physical handicap, whereas an orthopedic handicap is a musculo-skeletal problem only. It is really more involved with movement inefficiency than most physical handicaps.

Why Physical Education for the Multi-Handicapped and Orthopedically Impaired?

There are five areas to consider when developing rationale of why people need physical education and why in particular handicapped people have a more direct need than the normal. We can justify incorporation of physical education into the programs for handicapped populations when we consider the educational, physical, social, economic, and psychological benefits.

Educational

Consider the role movement has as the foundation of our future learning abilities and our future ability to deal with shape, form, direction, distance, etc. This is somewhat in line with Kephart's theory of perceptual-motor development: to achieve and proceed through the sequential perceptual-motor steps outlined by Kephart and to ultimately have concept formation, you have to have motor activity involvement. Four of these foundation steps, directly related to physical education, are balance, locomotion, contact, and receipt and propulsion.

Spatial relationships are a direct off-shoot of balance, which is a development of directionality skills. This is obviously a physical education type of activity. In order to have contact with an object, you need fine motor coordination. This is very important (necessary) in terms of shape, size, and texture perception. Fine motor movement (contact) is the foundation for quite a bit of our perceptual learning. You need locomotion for the perception of objects in space, such as to move around rooms (in the environment). This mobility will allow for a greater degree of involvement with the environment. Receipt and propulsion is being able to receive objects and track objects coming into you as well as imparting force on objects, such as throwing a ball. Both receipt and propulsion depend on and contribute to particular perceptual-motor skills and are very closely related to physical education.

A lot of physical education, in fact, is centered on receipt and propulsion, examples being: the ball games of volleyball, basketball, etc. Locomotion

receives much emphasis in regular physical education, but contact and balance skills are not an emphasis of regular physical education. Theoretically, however, these physical experiences have to be present in order for a person to ultimately achieve concept formation abilities. This leads one to support the idea of preschool physical education or physical education very early in elementary school. The nature of several learning disabilities and/or perceptual-motor deficits lend themselves to work in the area of physical education activities.

Physical

The physical contribution is not only concerned with body mechanics but also with aerobic conditioning or physical fitness in general. People who have handicaps, particularly orthopedic handicaps, will have a difficult time in terms of having the opportunity to participate in endurance type activities. This will effectively cut into their projected life span because, in general, they are in very poor physical condition. They do not have the defense mechanisms that the normal person has against disease. Therefore, physical education for those who are handicapped can also be directed at physical fitness type activities, for there is a basic need to increase the health of that person.

Social Benefits

There is a social factor involved in many physical education activities, particularly for those persons who are isolated. As an example, children who are TMR and working in a school of TMR children tend to reinforce each others' behavior. They act TMR because they do not have the social interaction with normal populations. Physical education activities such as game type activities and dance activities in a mainstream setting can provide outlets for what we consider normal social behavior in our society.

Economic Factors

A person has the potential through exercise programs, physical fitness programs, and social programs to increase his economic drawing power. This should be a major consideration of education in the school setting to provide a person with a means of gaining independence in society. To possess the physical skills to be able to perform tasks generally increases ones economic independence, and adapted physical education and physical education in general can somewhat obliquely address that problem.

Psychological Benefits

For the handicapped child with psychological problems, particularly for those individuals who have physical handicaps and spend most of their time just sitting around watching television fostering some types of isolation type behavior, physical education can be very beneficial. Physical education can involve them in social activities which have a beneficial psychological effect as well as a beneficial physiological effect. Exercising the body can produce a positive psychological effect in terms of relaxation and tension reduction. If a person is overweight and participating in and making progress in a weight-reduction program, in most cases the self-image is improved. This can be psychologically very healthy.

Physical Handicaps/Orthopedic Handicaps - What Can Physical Education Do?

When physical handicaps and orthopedic handicaps occur, what are some of

the typical problems the physical educator will run across? What are typical types of physical education activities that, in general, could be used, or at least be addressed? Since this is such a broad topic, it is very difficult to generalize because there are such specific needs for specific types of handicaps. However, in general, in the multihandicapped population there are some trends that are fairly prevalent.

In order to address these questions, consider the developmental process. The first activities of infants are movement activities, specifically reflex activities. Our reflexes eventually disappear within the first couple of years or less due to development of higher brain centers. When this occurs, we are able to function voluntarily in terms of motor expression, as opposed to being constantly under reflex control. For individuals with damage of higher motor neurons, the reflexes continue to be present and to dominate movement; the higher motor centers are not overriding the influence of the reflexes. With the reduction of the reflexes or the breaking apart of reflexes, we begin to differentiate reflex movement to accomplish certain tasks. We can also have integration: different reflexes are combined into gross movements so that we may use three separate reflexes in combination to achieve some movement and thus begins the development of movement patterns which are purposeful movements such as reaching for objects. From these basic movements the development of laterality, perceptual-motor matching, directionality, and eventually concept formation occurs. This is all based on a sequential, non-interrupted developmental progression. There is not much leeway for deviation from the sequence of perceptual-motor development or motor development without resultant learning and/or motor impairment.

The developmental process is particularly important when you think about posture. When a child is born in a ball, the fetal position, the spine is in a primary curve. As the child begins to lift its head, it begins stressing bones of the neck or the cervical vertebrae. Secondary curves are developed there and in the lumbar area, due to the curve being reversed when you stand up. Your body has to go through some changes to adjust to that new posture and a new center of gravity. Without this occuring, without a person standing up and walking, the bones continue to form within the direction of the stress placed on them. If a person does not stand up and walk, the secondary curve will not form. The bones after 20 years become harder due to ossification and will not be reshaped by the gravitational force or muscular force placed on them. Postural problems of this type can also occur from delayed motor development due to brain damage.

It is important to realize that bones do adapt to the stress placed on them and that the muscles are capable of applying stress to the bones causing postural deviations or any type of a skeletal deviation. If a muscle is tight, not permitting full-range of motion at a joint, the stress placed on that joint or immobility will in some way deform the joint. If this condition is deforming the bone, eventually, unless it is taken through a full-range of motion, there is no exercise that will correct for the deformity. Many orthopedic problems of the multi-handicapped individual have to do with muscle force imbalances and deviations. An example would be one muscle being strong and the other muscle being weak. Consequently, you don't have a full-range of motion and the strong muscle begins to tighten up. It is very similar to the effect you have when your arm is in a cast and once removed, you can't straighten out your elbow. It is the same effect in cases of cerebral palsy or motor cortex damage where muscle spasticity keeps the muscle in constant contraction. If that muscle is not stretched out, the limb will remain bent permanently due to the bone adjusting

or adapting to that position.

There are physical education goals that are of particular importance for those with orthopedic handicaps or the orthopedic handicaps associated with mental retardation or cerebral palsy. One goal can be strength development, where an attempt is made to improve the ratio of strength of muscle groups. This is done so that a person is not strong on one side of the body and weak on the other causing a postural problem. Flexibility can be a very important goal, also. This is extremely important for the very young cerebral-palsied child who needs to maintain full-range of motion. When the child has cognition and wants to move, he will at least have the physical abilities to move the necessary range of motion. Then, whether the motion be active or passive, it will at least be present. If the range of motion is not present, the child will not have any option but to hold his limb in a deformed manner. Physical fitness and endurance type activities are also very beneficial goals for the physically and orthopedically handicapped. These activities are important since these individuals are more susceptable to respiratory infections and diseases, postural problems where the rib cage has been deformed and the lung capacity affected, and to negate the effects of a sedentary style of life.

Physical education can teach social and recreational type skills and competitive athletic skills. These activities benefit several different areas: perceptual-motor development; social development; as well as psychological release in competitive games. The strength, flexibility, and endurance goals can be used as a prerequisite for skills, in other words, teaching movements of the arm through a certain distance. Also, to be able to shoot a basket requires that person to be able to go through an exercise program so that the arm indeed has that range of motion. Physical education programs can assist a person in acquiring the ability, through strength, flexibility and physical training, to reach a point where they can function and become more independent in their environment. Physical education programs can assist a person in pursuing some type of recreational activity that would give them a social outlet as well as a purpose and enjoyment.

Postural deviations are one of the most prevalent types of physical handicaps of mentally handicapped children. Anyone that has a lower limb problem, whether it be a broken leg or sprained ankle, is going to make some type of postural adjustment. If this is done over a lengthy period of time, the person would have some type of inappropriate curvature of the spine. Those who have neurological handicaps or any sort of disability of a lower limb, such as spina bifida, where you have a paralysis of the lower limbs, have a good chance to have a scolosis (lateral curvature) or a lordosis or a kyphosis, both of which are sagittal plane deviations.

There is a lot of emphasis being placed on posture, and one of the main reasons is that good posture aids in fighting respiratory problems. The lungs can be deformed and their capacity affected by limited rib cage expansion caused by poor posture. Also, digestion can be affected because of twisting of the spine.

Another associated problem is self-image. Looking in the mirror and seeing himself/herself standing up straight does a lot for a person's self-image and how they project themselves in the world and to others. A scolosis can be caused by several different types of conditions. A lot of people that are very much involved in normal activities and lifestyles have scolosis due to

a muscle imbalance where one side of the body is stronger than the other. For example, I would imagine it is more prevalent in people who go bowling because bowling every night and using only one side of the body will make that side stronger than the other side. This situation has the potential long-range effect of putting pressure on the vertebrae which can eventually cause compression of the nerves and possible paralysis. This is an overstatement probably, but it is theoretically feasible.

In physical education programming for someone with a postural problem, it is very important that you work with the person to make sure that exercises for the back and abdomen are done symmetrically. You should discourage them from limping and try to get them into a normal gait pattern as fast as possible. You want to develop both sides of the body at the same rate. With scolosis, you should not suggest just strengthening the weak side of the body, but both sides of the body. Therefore, you don't get back into a compensation where the person has become too strong on the other side and you have just changed the limp from the right to the left side.

The idea in a program for an orthopedic problem is to stretch tight muscles and strengthen weak muscles; one or the other or both of these usually has to be addressed. If you do symmetrical type exercises for both sides of the joint and body, you have pretty much guaranteed yourself that you are doing the proper exercise techniques. Everything should be done slowly; you do not want to work fast with orthopedic problems, particularly with cerebral palsy, since you want relaxed, slow movements without involving the stretch reflex. Do as much bilateral type movements as possible. This is one of the arguments against racquetball. Handball is a bilateral activity and has more benefit for you than racquetball, which is a unilateral activity. Obviously, you want to try to get people, particularly those with postural problems, into bilateral movement. Soccer is an excellent game because it requires both sides of the body.

One of the ways to administer (teach) group exercise programs is to have buddy systems with one person holding the feet while another person does the exercise. It is very difficult to do exercise programs on a one-to-one basis with a child unless you have the teacher release time. It may be beneficial to use older students to work with the handicapped students, or to have the handicapped students work cooperatively with one being a spotter and the other performing the exercise.

It is very important for special educators to be concerned with what is going on in physical education and physical training and to have the programs complement one another. If a child is having postural problems, the special educator or regular classroom teacher and the physical education teacher should be aware of that problem. This way the child is reinforced for appropriate posture in the classroom and in the physical education program.

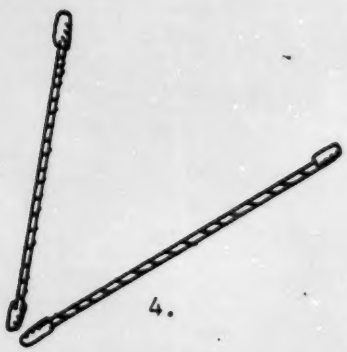
TEACHING ADAPTATION AND ACTIVITY MODIFICATION

Following assessment of a child's present level of functioning and the development of appropriate goals and behavioral objectives, a teacher is charged with planning an appropriate physical education program. Certain adaptations of teaching techniques have proven to be successful in the mainstreamed setting, making activity modification minimal.

Teaching Techniques

Four operative words are highlighted here to draw attention to teaching techniques that are already a part of a physical educator's repertoire of teaching. These words are cueing, reinforcement, grouping, and organization. To better explain the importance of these techniques in working with handicapped children, each is discussed in an exemplary manner using an obstacle course. The obstacle course consists of:

1. hula hoop
2. bridge of rope supported by two pylons
3. mat
4. two ropes lying on the floor



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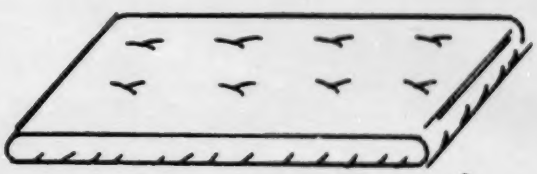

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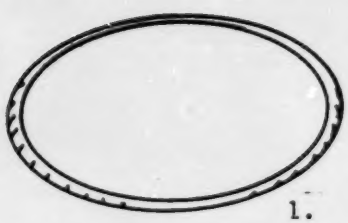

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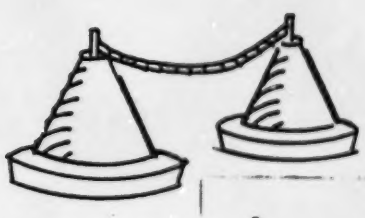


2.

Cueing

Cueing is a process of providing a student with a complete understanding of what is expected. For your special education students, verbally providing commands and directions of "Jump over the rope, do a forward roll on the mat, and jump over the stream: may be too much to internalize at one time. The activity should be broken down and reviewed according to each specific direction. It may be necessary to physically direct a student as an explanation is provided and even have additional cues available, such as a large, bright "number one" by the hula hoop, a "number two" by the bridge and so on to provide further

direction. One additional method might be to question the student as to what is expected before he even attempts to physically engage in the activity.

As a separate point, it is necessary that a student be in close proximity with the teacher and that eye contact is made and the student's name called before directions are given. An example is "John, when I say 'GO,' run around the hula hoop." This ensures that the student realizes that the directions were directed to him, and that he knows what was expected of him after the signal was given.

Reinforcement

Positive reinforcement is a much neglected technique used to mold appropriate behavior and skills. To supplement the teacher's enthusiasm, other students could clap and cheer for a student who may be participating at the moment in an activity such as the obstacle course. The teacher, besides providing verbal encouragement, may magnify the reinforcement by moving with the student through each stunt activity. In this manner, the student realizes that the comments are intended for him. Using the child's name and having eye contact as often as possible will also provide additional understanding to the student that the reinforcement was aimed in his or her direction.

Additional reinforcement techniques may involve praising the students who are exhibiting acceptable behavior while ignoring the behavior of students who may be acting-out or behaving inappropriately. A student who does not want to participate in a specific activity may be encouraged to do so by being awarded special privileges. By allowing the student to choose the next activity or to be awarded free activity time, the teacher can reinforce the student's participation in the undesirable activity.

Grouping

The obstacle course provides an example of an activity lay out that exemplifies class control and individual ability. The obstacle course presented includes four separate activities. The rope for the bridge can be raised or lowered according to the student's jumping ability. The tumbling skill on the mat can be simplified in terms of an activity such as a log roll or changed to a more complex skill such as a forward or backward roll. The student could also choose what distance he or she wishes to jump. The final activity in the obstacle course consists of a child coming to a complete stop rather than maintaining a running position. For many children, if the total activity is not terminated in this way, then the student may not realize the necessity to stop and would continue to run . . . perhaps completely out of the gym. Grouping can surely assist in accommodating handicapped students within the regular physical education class. Three or more obstacle courses could be laid out, each route requiring the development of more complex skills. This approach would allow a rather large group of students with a diverse range of motor skills to participate in a successful manner.

Class Organization

Class organization is a very flexible technique. In some ways, it is the culmination of the other three discussed techniques. Since everyone likes a little mystery, classes can be organized to meet the goals in new and different ways. Have theme days such as "Carnival Day" where booths are set up. Each booth or station could test a different skill such as throwing a bean bag, a

small ball, or a dart at a large target. The reinforcement could be a jelly bean or M & M for each point awarded. Plan each skill guaranteed for success. Having a lesson such as this is a refreshing way to meet class objectives for both the teacher and the students.

Carpet squares are a good method for class control. Have students sit on a carpet square at the beginning of class while the lesson for the day is explained. Or use the squares as a path to cue students where they are to go or stand when participating in an activity. When students have to wait their turn, assign them a carpet square to sit on. This helps eliminate roaming behavior.

When adapting an activity, do not overlook the possiblity of having the other students simulate the handicapping condition. Ear plugs, crutches, blindfolds, or wheelchairs could be used by all of the students. This helps develop a better awareness in all of the students.

Activity Modification

Softball and bowling are two sports that are relatively easy to adapt. These are activities that the community might offer; therefore, the student would learn appropriate behavior to help him to be integrated into the community. Listed below are some modifications for these sports.

Softball

1. Have everyone hit from the batting T.
2. Have seven bases for overweight or physically handicapped students.
3. Have partner--one hit, the other run.
4. Have the rule that three people in the field have to handle the ball before trying to get the runner out.
5. Have the option of advancing to the next base. Thus, a runner can be passed by the following runner.
6. Have partner to run with.
7. Make the distance between bases shorter.
8. Use a wiffle ball and/or an oversized bat.

Bowling

1. Place the pins in a tight triangle where the pins are touching each other. If one pin falls down, all of them fall. As the students' skill levels mature, increase the space between the pins.

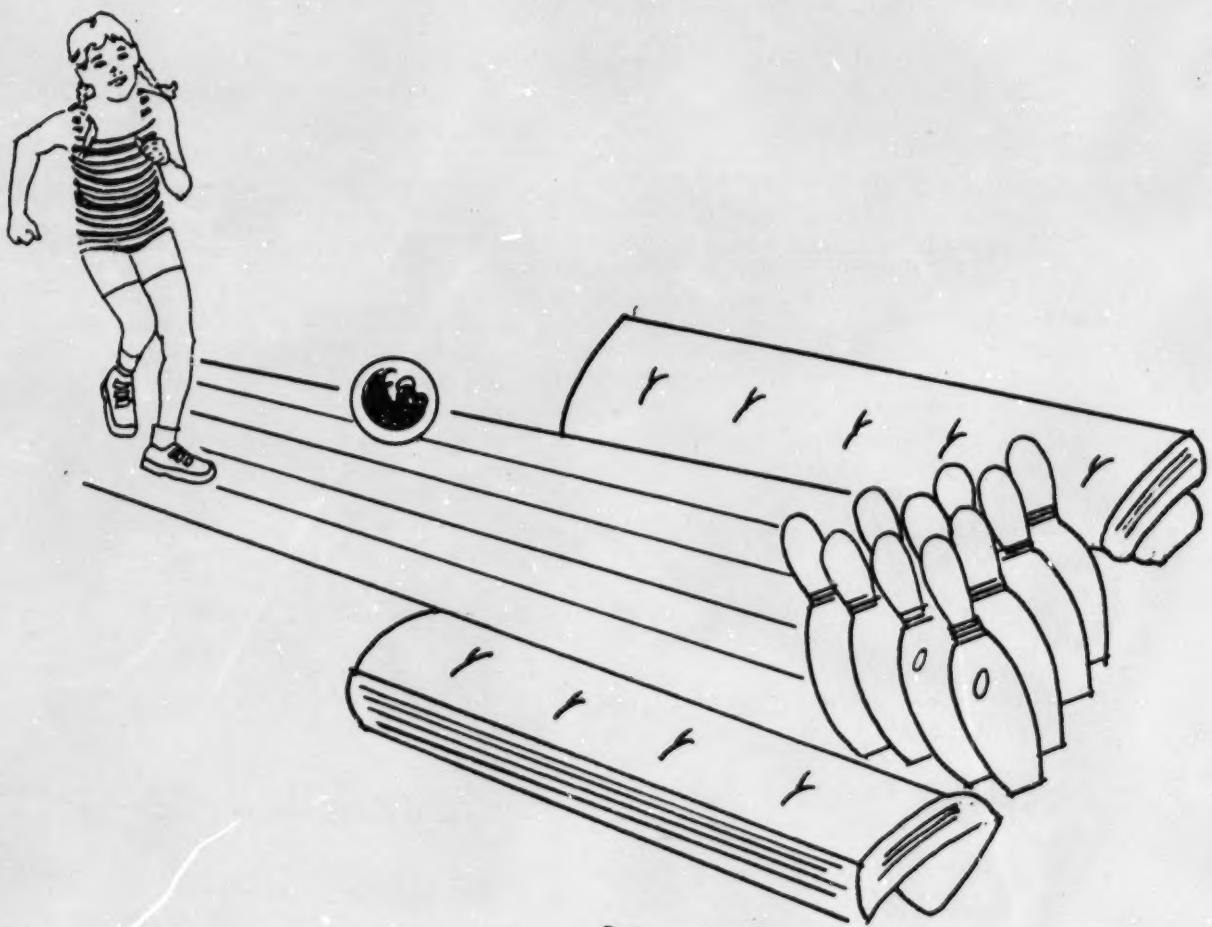
2. Have the alley banked with mats stacked on each other or standing up so the mats will direct the roll of the ball into the pins.

3. Position the foul line close to the pins and increase the distance according to the skill level obtained.

4. Use a large cardboard triangle with holes cut out to set the pins in so the students will have a guide in placing the pins in the desired order. Also, if the ball bumps the cardboard triangle, the movement would help knock the pins down.

5. Use plastic bowling pins and hollow rubber bowling balls for safety and ease of use.

6. Have the pins arranged on one end of a strip of newsprint taped to the floor. The foul line would be where the strip of paper begins. This gives a good visual guide to follow in order to hit the pins.



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